

## ABSTRACT

A network switch includes an input layer to receive a data stream with a set of cells. Each cell includes data and a header to designate a destination device. The input layer includes a set of input layer circuits. A selected input layer circuit of the set of input layer circuits receives the data stream. The selected input layer circuit includes a set of queues corresponding to a set of destination devices. The selected input layer circuit is configured to assign a selected cell from the data stream to a selected queue of the set of queues. The selected queue corresponds to a selected destination device specified by the header of the selected cell. An intermediate layer includes a set of intermediate layer circuits, each intermediate layer circuit has a set of buffers corresponding to the set of destination devices. A selected intermediate layer circuit of the set of intermediate layer circuits receives the selected cell and assigns the selected cell to a selected buffer corresponding to the selected destination device. An output layer includes a set of output layer circuits corresponding to the set of destination devices. A selected output layer circuit of the set of output layer circuits stores the selected cell prior to routing the selected cell to a selected output layer circuit output node.